4.1 Classifying Triangles

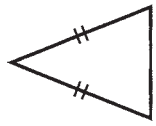
Goal Classify triangles by their sides and by their measures.

VOCABULARY

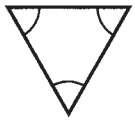
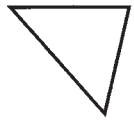
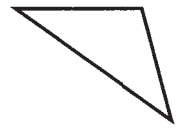
Triangle

Vertex

CLASSIFICATION OF TRIANGLES BY SIDES

Equilateral Triangle	Isosceles Triangle	Scalene Triangle
		
___ congruent sides	At least ___ congruent sides	____ congruent sides

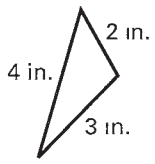
CLASSIFICATION OF TRIANGLES BY ANGLES

Equiangular Triangle	Acute Triangle	Right Triangle	Obtuse Triangle
			
___ congruent angles	___ acute angle(s)	___ right angle(s)	___ obtuse angle(s)

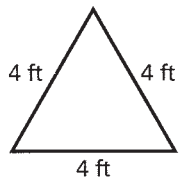
Example 1 *Classify Triangles by Sides*

Classify the triangle by its sides.

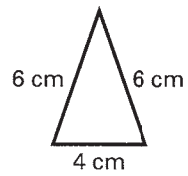
a.



b.



c.



Solution

a. Because this triangle has ____ congruent sides, it is _____.

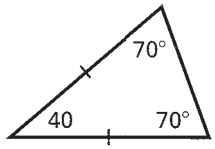
b. Because this triangle has ___ congruent sides, it is _____.

c. Because this triangle has ___ congruent sides, it is _____.

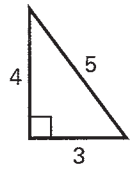
Example 2 *Classify Triangles by Angles and Sides*

Classify the triangle by its angles and by its sides.

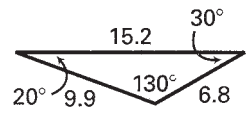
a.



b.



c.



Solution

a. Because this triangle has 3 angles with measures less than 90°, it is _____. Because it has 2 congruent sides, it is _____. So, it is a(n) _____ triangle.

b. Because this triangle has a right angle, it is _____. Because it has no congruent sides, it is _____. So, it is a(n) _____ _____ triangle.

c. Because this triangle has one angle greater than 90°, it is _____. Because it has no congruent sides, it is _____. So, it is a(n) _____ triangle.

Follow-Up

Can a triangle be both acute and obtuse?

_____

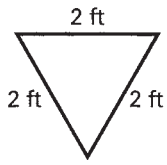
Can a triangle be both equilateral and acute?

_____

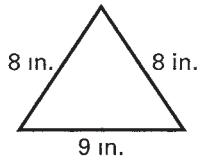
Can a triangle be both scalene and isosceles?

✔ ***Checkpoint*** **Classify the triangle by its sides.**

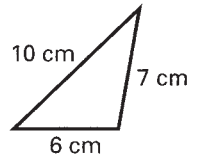
1.



2.

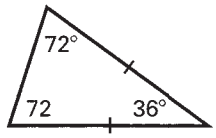


3.



Classify the triangle by its angles and by its sides.

4.



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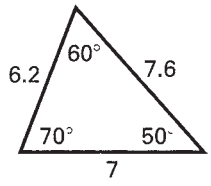
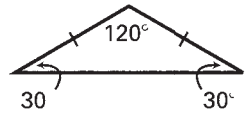
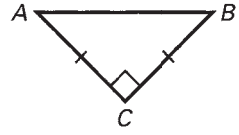


6.



Example 3 ***Identify the Parts of a Triangle***

Identify which side is opposite each angle.



Solution

$\overline{BC}$ is the side that is opposite ____.

$\overline{AC}$ is the side that is opposite ____.

$\overline{AB}$ is the side that is opposite ____.